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FEDERAL SUPPLY CLASS
6150

AS7974/4

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INTERNATIONAL
400 Commonwealth Drive, Warrendale, PA 15096-0001

AEROSPACE STANDARD

CABLE ASSEMBLY, EXTERNAL ELECTRIC POWER, AIRCRAFT, SINGLE-JACKETED 115/200 VOLT, 400 HERTZ

AS7974/4
SHEET 1 OF 8

THE REQUIREMENTS FOR ACQUIRING THE PRODUCT DESCRIBED HEREIN SHALL CONSIST OF THIS SPECIFICATION SHEET AND THE ISSUE OF THE FOLLOWING SPECIFICATION LISTED IN THAT ISSUE OF THE DEPARTMENT OF DEFENSE INDEX OF SPECIFICATIONS AND STANDARDS (DODISS) SPECIFIED IN THE SOLICITATION: MIL-C-7974.

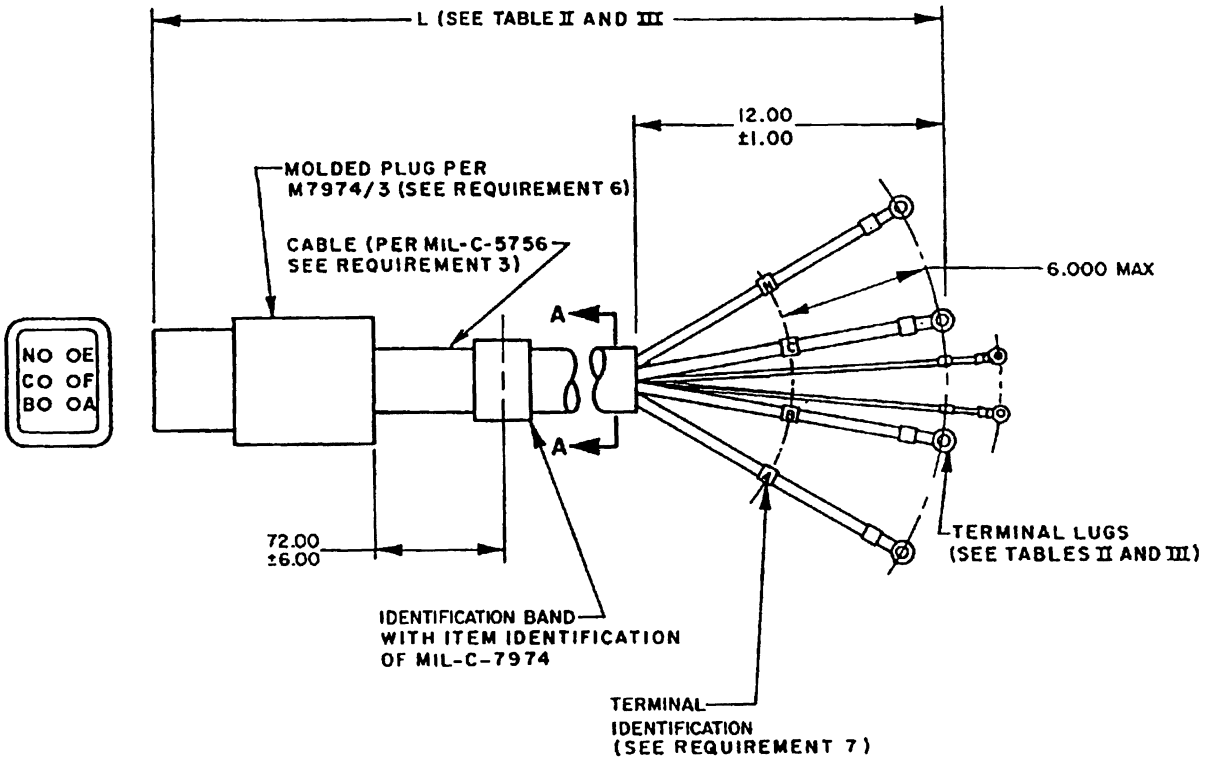
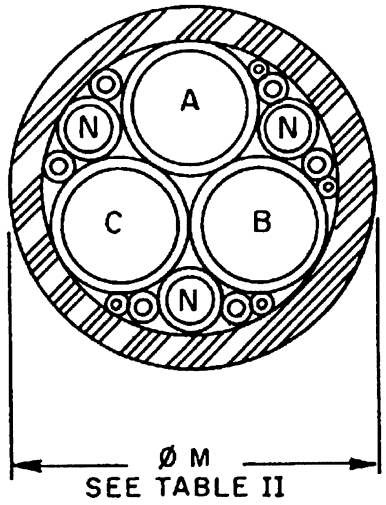
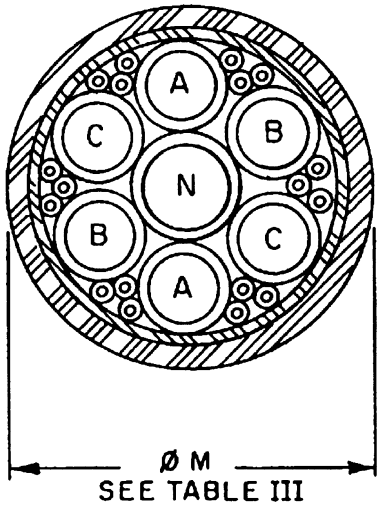


FIGURE 1. CABLE ASSEMBLY.



TYPE I, STYLE A AND B
CONSTRUCTION MIL-C-5756/5
CABLE (SEE REQUIREMENT 3)



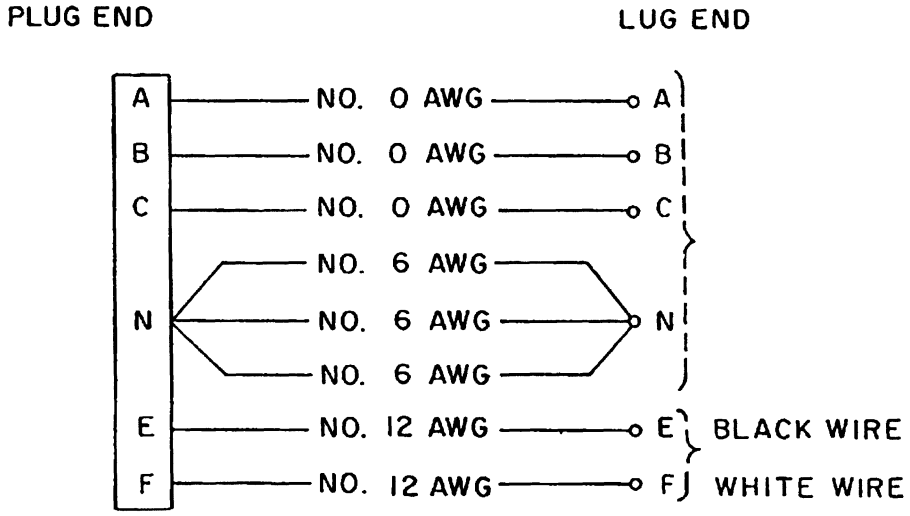
TYPE II, STYLE C
CONSTRUCTION MIL-C-5756/5
CABLE (SEE REQUIREMENT 3)

SECTION A-A

FIGURE 2. CROSS-SECTION OF CABLE.

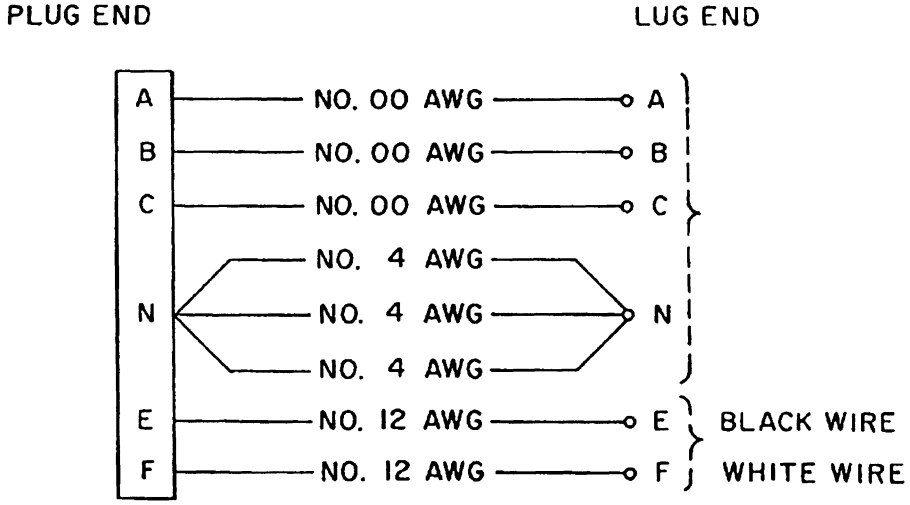
TABLE I. METRIC CONVERSION.

INCH	MM	INCH	MM	FEET	CM	FEET	CM
1.000	25.40	1.980	50.29	0.50	15.2	60.0	1829
1.555	39.50	6.000	152.4	20.0	610	72.0	2195
1.660	42.16	12.00	304.8	30.0	914	80.0	2438
				40.0	1219	100.0	3048



For assemblies without control leads, contacts E and F are electrically connected in the connector head using an AWG 12 (minimum) conductor.

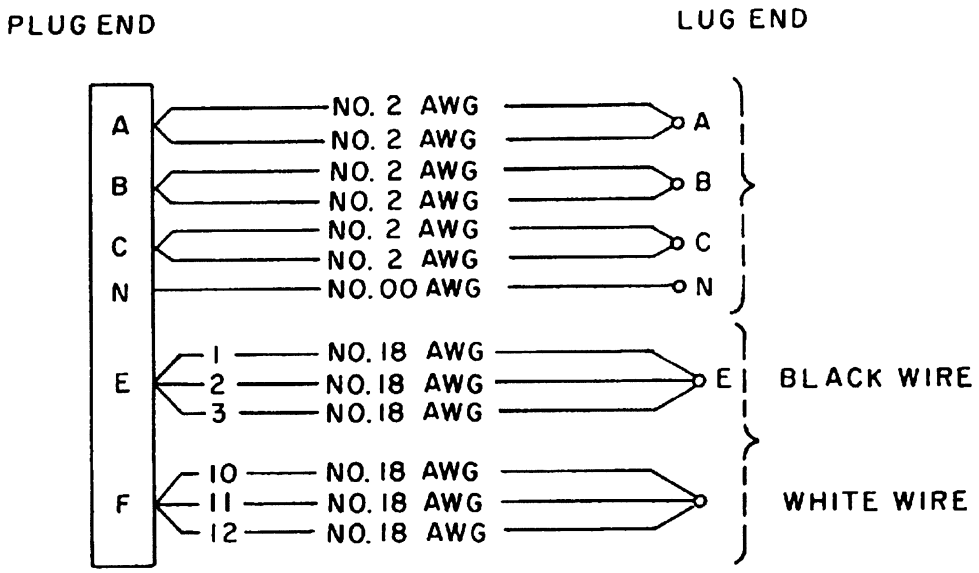
Wiring Diagram for Type I, Style A (Split Neutral) Cable Assembly



For assemblies without control leads, contacts E and F are electrically connected in the connector head using an AWG 12 (minimum) conductor.

Wiring Diagram for Type I, Style B (Split Neutral) Cable Assembly.

FIGURE 3. WIRING DIAGRAM TYPE I CABLE ASSEMBLY.



For assemblies without control leads, contacts E and F are electrically connected in the connector head using an AWG 12 (minimum) conductor.

Wiring Diagram for Type II, Style C (Split Phase) Cable Assembly

FIGURE 4. WIRING DIAGRAM TYPE II CABLE ASSEMBLY.

TABLE II. TYPE I CABLE ASSEMBLY DETAILS.
ASSEMBLIES WITH CONTROL LEADS

PART NUMBER	WIRE SIZE			LUG TERMINALS		L FEET ±0.5	M DIA INCH (NOM)
	A, B, C	N	E AND F CONTROL	A, B, C, N	E & F CONTROL		
M7974/4A-1-20	0 AWG	3 X 6 AWG	12 AWG	MS20659-118	MS20659-106	20	1.595
M7974/4A-1-30	0 AWG	3 X 6 AWG	12 AWG	MS20659-118	MS20659-106	30	1.595
M7974-4A-1-40	0 AWG	3 X 6 AWG	12 AWG	MS20659-118	MS20659-106	40	1.595
M7974/4A-1-60	0 AWG	3 X 6 AWG	12 AWG	MS20659-118	MS20659-106	60	1.595
M7974/4A-1-80	0 AWG	3 X 6 AWG	12 AWG	MS20659-118	MS20659-106	80	1.595
M7974/4A-1-100	0 AWG	3 X 6 AWG	12 AWG	MS20659-118	MS20659-106	100	1.595
M7974/4B-1-20	00 AWG	3 X 4 AWG	12 AWG	MS20659-120	MS20659-106	20	1.865
M7974/4B-1-30	00 AWG	3 X 4 AWG	12 AWG	MS20659-120	MS20659-106	30	1.865
M7974/4B-1-40	00 AWG	3 X 4 AWG	12 AWG	MS20659-120	MS20659-106	40	1.865
M7974/4B-1-60	00 AWG	3 X 4 AWG	12 AWG	MS20659-120	MS20659-106	60	1.865
M7974/4B-1-80	00 AWG	3 X 4 AWG	12 AWG	MS20659-120	MS20659-106	80	1.865
M7974/4B-1-100	00 AWG	3 X 4 AWG	12 AWG	MS20659-120	MS20659-106	100	1.865

ASSEMBLIES WITHOUT CONTROL LEADS

PART NUMBER	WIRE SIZE		LUG TERMINALS		L FEET ±0.5	M DIA INCH (NOM)
	A, B, C	N	A, B, C, N	E & F CONTROL		
M7974/4A-2-20	0 AWG	3 X 6 AWG	MS20659-118	NO CONTROL LEADS USED CONTACTS E AND F SHALL BE ELECTRICALLY CONNECTED WITHIN THE HEAD USING AN AWG 12 (MINIMUM) CONDUCTOR.	20	1.595
M7974/4A-2-30	0 AWG	3 X 6 AWG	MS20659-118		30	1.595
M7974/4A-2-40	0 AWG	3 X 6 AWG	MS20659-118		40	1.595
M7974/4A-2-60	0 AWG	3 X 6 AWG	MS20659-118		60	1.595
M7974/4A-2-80	0 AWG	3 X 6 AWG	MS20659-118		80	1.595
M7974/4A-2-100	0 AWG	3 X 6 AWG	MS20659-118		100	1.595
M7974/4B-2-20	00 AWG	3 X 4 AWG	MS20659-120		20	1.865
M7974/4B-2-30	00 AWG	3 X 4 AWG	MS20659-120		30	1.865
M7974/4B-2-40	00 AWG	3 X 4 AWG	MS20659-120		40	1.865
M7974/4B-2-60	00 AWG	3 X 4 AWG	MS20659-120		60	1.865
M7974/4B-2-80	00 AWG	3 X 4 AWG	MS20659-120		80	1.865
M7974/4B-2-100	00 AWG	3 X 4 AWG	MS20659-120		100	1.865

TABLE III. TYPE II CABLE ASSEMBLY DETAILS.
ASSEMBLIES WITH CONTROL LEADS

PART NUMBER	WIRE SIZE			LUG TERMINALS		L FEET ±0.5	M DIA INCH (NOM)
	A, B, C	N	E AND F CONTROL	A, B, C, N	E & F CONTROL		
M7974/4C-1-20	2 X 2 AWG	00 AWG	3 X 18 AWG	MS20659-120	MS20659-109	20	1.980
M7974/4C-1-30	2 X 2 AWG	00 AWG	3 X 18 AWG	MS20659-120	MS20659-109	30	1.980
M7974/4C-1-40	2 X 2 AWG	00 AWG	3 X 18 AWG	MS20659-120	MS20659-109	40	1.980
M7974/4C-1-60	2 X 2 AWG	00 AWG	3 X 18 AWG	MS20659-120	MS20659-109	60	1.980
M7974/4C-1-80	2 X 2 AWG	00 AWG	3 X 18 AWG	MS20659-120	MS20659-109	80	1.980
M7974/4C-1-100	2 X 2 AWG	00 AWG	3 X 18 AWG	MS20659-120	MS20659-109	100	1.980

ASSEMBLIES WITHOUT CONTROL LEADS

PART NUMBER	WIRE SIZE		LUG TERMINALS		L FEET ±0.5	M DIA INCH (NOM)
	A, B, C	N	A, B, C, N	E & F CONTROL		
M7974/4C-2-20	2 X 2 AWG	00 AWG	MS20659-120	NO CONTROL LEADS USED CONTACTS E AND F SHALL BE ELECTRICALLY CONNECTED WITHIN THE HEAD USING AN AWG 12 (MINIMUM) CONDUCTOR.	20	1.980
M7974/4C-2-30	2 X 2 AWG	00 AWG	MS20659-120		30	1.980
M7974/4C-2-40	2 X 2 AWG	00 AWG	MS20659-120		40	1.980
M7974/4C-2-60	2 X 2 AWG	00 AWG	MS20659-120		60	1.980
M7974/4C-2-80	2 X 2 AWG	00 AWG	MS20659-120		80	1.980
M7974/4C-2-100	2 X 2 AWG	00 AWG	MS20659-120		100	1.980

REQUIREMENTS:

1. QUALIFICATION REQUIRED.

2. MATERIAL: SEE MIL-C-7974.

3. CABLE ASSEMBLY TYPE.

   a. TYPE I, CABLE ASSEMBLY - FOR SPLIT NEUTRAL CONSTRUCTION.

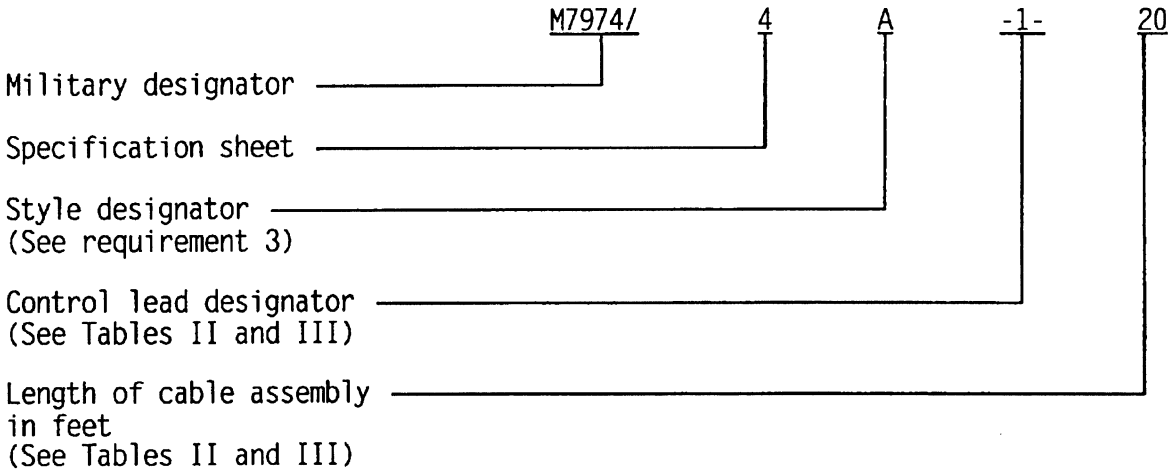
      STYLE A DESIGNATOR - CABLE CONSTRUCTION SHALL BE 0 SIZE IN ACCORDANCE WITH M5756/5-001 PART NUMBER.

      STYLE B DESIGNATOR - CABLE CONSTRUCTION SHALL BE 00 SIZE IN ACCORDANCE WITH M5756/5-002 PART NUMBER.

   b. TYPE II, CABLE ASSEMBLY - FOR SPLIT PHASE CONSTRUCTION.

      STYLE C DESIGNATOR - CABLE CONSTRUCTION SHALL BE 00 SIZE IN ACCORDANCE WITH M5756/6-001 PART NUMBER.

4. PART NUMBER: SEE EXAMPLE BELOW:



5. DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.

6. MOLDED-ON PLUGS SHALL MEET ALL THE REQUIREMENTS OF MIL-C-7974/3 ATTACHABLE CONNECTORS EXCEPT THAT THEY SHALL BE MOLDED TO THE CABLES.

7. IDENTIFICATION OF TERMINALS SHALL BE LEGIBLE AND PERMANENT, SUCH AS BY HOT STAMP MARKING OR INK STAMPED HEAT SHRINK TUBING ON THE WIRE INSULATION.

8. FOR TYPE I CABLE ASSEMBLIES, THE 3 N WIRES SHALL BE GROUPED TOGETHER IN PARALLEL INTO A SINGLE “N” CONDUCTOR, THEN CRIMPED INTO THE “N” PLUG SOCKET ON THE PLUG END, AND INTO THE “N” LUG TERMINAL ON THE OTHER END.

9. FOR TYPE II CABLE ASSEMBLIES, THE POWER CONDUCTORS A, B, AND C ARE TO BE PAIRED AND CRIMPED INTO THE PROPER “A”, “B” OR “C” SOCKET CONTACT ON THE PLUG END AND INTO THE PROPER “A”, “B”, OR “C” TERMINAL LUG ON THE OTHER END.

10. FOR TYPE I AND II CABLE ASSEMBLIES, UNTERMINATED CONTROL LEADS MAY BE INCLUDED OR OMITTED AT THE OPTION OF THE MANUFACTURER.

11. BAND TENSILE STRENGTH - NOT APPLICABLE.

12. UNUSED CONDUCTOR ISOLATION. TEST FOR QUALIFICATION AND QUALITY CONFORMANCE. THE CURRENT LEAKAGE SHALL BE MEASURED BETWEEN ALL THE POWER CONDUCTORS (A, B, C, AND N) CONNECTED ELECTRICALLY AND ALL UNTERMINATED CONTROL LEADS (IF USED) CONNECTED ELECTRICALLY. THE CURRENT LEAKAGE SHALL NOT EXCEED 1 MILLIAMPERE.

13. CABLE ATTACHMENT TO PLUG. TEST ACCORDING TO MIL-C-7974, EXCEPT APPLY FORCE BETWEEN THE NEAR OF THE PLUG BODY AND THE CABLE JACKET.

14. VOLTAGE DROP FOLLOWING SALT SPRAY - REQUIRED. A SPECIFIC DETAILED TEST METHOD MUST BE SUPPLIED TO THE QUALIFYING ACTIVITY FOR APPROVAL, DESCRIBING HOW THE VOLTAGE DROP TEST WILL BE PERFORMED NONDESTRUCTIVELY AS A QUALITY CONFORMANCE TEST ON 100% OF CABLE ASSEMBLIES PRODUCED. SALT SPRAY EXPOSURE IS NOT REQUIRED FOR QUALITY CONFORMANCE TESTING.

15. CABLE ATTACHMENT TO LUG TERMINAL AND CRIMP BARREL - ADD THE FOLLOWING TEST ACCORDING TO MIL-C-7974, EXCEPT APPLY THE FORCE BETWEEN THE LUG TERMINAL OR CRIMP BARREL AND EACH INDIVIDUAL WIRE OF A POWER, NEUTRAL, OR CONTROL LEG. THE FOLLOWING ARE ADDITIONS TO TABLE V OF MIL-C-7974:

TABLE IV. LUG TERMINAL AND CRIMP BARREL STRENGTH REQUIREMENTS.

WIRE SIZE ATTACHED TO CRIMP BARREL OR LUG (AWG)	MINIMUM STRENGTH (LBS)	USED WITH
18	38	CONTROL LEADS - TYPE I
6	300	NEUTRAL - TYPE I